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Civil/Environmental Engineering & Construction Management

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May 7, 2001

Mr. Ed Southwick
Nebraska Department of Environmental Quality
Suite 400, The Atrium
1200 N Street
P.O. Box 98922
Lincoln, NE 68509-8922

Subject: Lockwood Corporation
Compliance Monitoring Report, Spring, 2001
RCRA Part B Post-Closure Permit
NDEQ/EPA ID # NED044101442

Dear Mr Southwick:

On behalf of Lockwood Corporation, Sorensen Consulting, LLC. (Formerly Sorensen Environmental, Inc.) is pleased to submit three (3) copies of the referenced Compliance Monitoring Report. This report was prepared and is submitted in accordance with requirements of the Part B Post Closure Permit Application of August 10, 1994 and the RCRA Post Closure Permit issued by the Nebraska Department of Environmental Quality (NDEQ) on December 16, 1994. As required, one (1) copy of the referenced report is being sent to U.S. EPA, Region VII in Kansas City, KS.

Sorensen Consulting conducted groundwater sampling of compliance monitoring wells near the Lockwood closed waste acid impoundment on March 29, 2001. The enclosed report summarizes findings.

If you have any comments or need additional information, please contact me at (970) 484-9286.

Sincerely,



Paul C. Sorensen, P.E.
President

Enclosure



R00186660
RCRA RECORDS CENTER

cc: James Mitchell
Ms. JoAnn M. Heiman, U.S. EPA - Region VII

MAY 09 2001

LOCKWOOD CORPORATION
Highway 92 East
Gering, NE

**POST-CLOSURE CARE
COMPLIANCE MONITORING REPORT**

NDEQ/EPA ID # NED044101442

SUBMITTED TO:

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

PREPARED BY:

**Sorensen Consulting, LLC.
1901 Bear Court
Fort Collins, CO 80525**

May 7, 2001

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1.0 INTRODUCTION

As prescribed in the RCRA Part B Post Closure Permit Application of August 10, 1994 and in the Post-Closure Permit (NDEQ/EPA I.D. #: NED044101442) issued by the Nebraska Department of Environmental Quality (NDEQ) on December 16, 1994, Sorensen Consulting, LLC (previously Sorensen Environmental, Inc.) conducted sampling of compliance monitoring wells near the closed waste acid impoundment on the Lockwood facility in Gering, Nebraska on March 29, 2001. On behalf of Mr. James J. Stumpf, Chapter 7 Trustee for Lockwood Corporation, we are pleased to submit this summary report of compliance monitoring procedures and analytical data.

2.0 SAMPLING PROCEDURES

Compliance monitoring was performed in accordance with procedures outlined in Section 3.0 of the RCRA Part B Post Closure Permit Application, Sampling and Analysis Plan. As required, initial (pre-sampling) groundwater elevation measurements were made, as well as a determination of total well depth. Post-sampling groundwater elevations were also measured with the use of an electronic water level indicator. In response to the NDEQ Notice of Violation (NOV) of August 8, 1994, well recovery time after purging and sampling was recorded to the nearest half minute with the continuous use of the electronic water level indicator. Corresponding data are provided in Section 3.0.

Groundwater samples were taken from the following compliance monitor wells, in the order presented: MW-8 (background), MW-6, MW-3, MW-7, MW-1, and MW-4. This sampling sequence goes from up- to down-gradient of the closed waste acid impoundment. Field measurements were recorded for pH, specific conductance, and temperature. Each monitor well was purged in excess of three times the casing volume and until consecutive readings of pH, specific conductance, and temperature varied by less than 5 %.

Groundwater samples were collected from each well and submitted to Technology Laboratory, Inc. in Fort Collins, Colorado for analysis of the following parameters:

- Volatile Organic Compounds;
- Total Cadmium;
- Total Lead; and
- Total Silver.

In accordance with NDEQ requirements, a duplicate sample was collected form MW-4 and submitted to the laboratory for metals analysis, a trip blank sample was submitted to the laboratory for metals analysis; and a duplicate sample from MW-1 was submitted for laboratory pH and specific conductivity analysis to confirm field measurements.

3.0 COMPLIANCE MONITORING RESULTS

Table 1 provides pertinent monitor well information, including: top of casing elevation; total well depth (as measured during this sampling event and as previously measured on October 14, 1994 for comparison); depth to groundwater; groundwater surface elevation; casing volume; and purge volumes prior to sampling. Top of casing elevations are as surveyed by Schaff & Associates, Inc. on October 14, 1994, and are Mean Sea Level elevations, minus 3,800 feet. These data are listed in Table 1 and also presented on Figure 1, along with the resulting groundwater potentiometric surface map as measured on March 29, 2001 and the inferred groundwater gradient and flow direction. Consistent with previous compliance monitoring findings, groundwater flow direction is to the northeast.

Groundwater elevations appear to be consistently higher in the fall than in the spring months, and measured groundwater elevations during this sampling event were typical of spring levels. Table 2 provides an account of recorded groundwater elevations measured during compliance monitoring events from October 1994 through March 2001, and Figure 2 provides a graphical display of the seasonal fluctuation in groundwater surface elevation.

The Technology Laboratory, Inc. analytical report and Chain-of-Custody documentation are presented in Appendix A. Laboratory analytical results are summarized in Table 3. As shown, analytical results for volatile organic compounds (VOCs), total cadmium, total lead, and total silver indicate that none of these compounds or elements is found in concentrations greater than the corresponding groundwater protection standard.

Review of the laboratory report (Appendix A) indicates that all of these parameters are reported at concentrations less than the detection limit for all monitor wells. The non-detect analytical results are consistent with those of previous monitoring results as reported in the Part B Post-Closure Permit Application submitted (with revisions) by Lockwood on August 10, 1994 and Post-Closure Care Compliance Monitoring Reports from November 1994 through the current monitoring event, with the following exceptions. Trichloroethene (TCE) was measured at 1.2 micrograms per Liter ($\mu\text{g}/\text{L}$) in MW-4 in the sample collected on October 16, 1997 and tetrachloroethene (PCE) was measured at 1.1 $\mu\text{g}/\text{L}$ in MW-6 in samples collected on April 2, 1998 and March 29, 2000. While these results are above the non-detectable level, they remain well below the designated Groundwater Protection Standard of 5.0 $\mu\text{g}/\text{L}$. Analytical results for all subsequent sampling events were once again reported at non-detect for all parameters analyzed.

In the NDEQ Notice of Violation (NOV) letter of August 8, 1994, NDEQ requested that Lockwood perform monthly well head inspections, annual well bore scrape sampling, and annual review of well yield, recovery time, and fill depth. Lockwood understands that these requests were made to demonstrate the proper functioning of the monitor wells. In response to that NDEQ comment, it was agreed that groundwater recovery times would be recorded to the nearest 30 seconds with the continuous use of an electronic water level indicator. Moreover, Lockwood agreed to perform the

requested well services "in the event that both of the following conditions are encountered in any given compliance monitoring well:

- Failure to produce visually clear sample water after purging of five (5) casing volumes; and
- Post-purging water surface depression below the initial water surface level in excess of 0.25 feet after a recovery period of not greater than 15 minutes (Lockwood response to NDEQ NOV, August 30, 1994)."

NDEQ agreed that very rapid groundwater recovery rates have been demonstrated during compliance monitoring events. It was therefore further agreed that recording of groundwater recovery in 30 second increments was necessary only once a year. However, for consistency from one monitoring event to the next, groundwater recovery rates in all compliance monitoring wells have been measured and reported during this and all sampling events. Table 4 presents groundwater recovery data. As demonstrated by the purge volumes necessary to produce visually clear water prior to sampling (Table 1) and by the recorded post-sampling depths to groundwater given in Table 4, neither of the above conditions was encountered, indicating acceptable conditions within each of the monitor wells. Water level measurements show consistently minimal changes in post-sampling from pre-sampling water levels, and the recorded differences are within the margin of error for the electronic water level indicator used.

4.0 STATISTICAL ANALYSIS

Analytical values for the parameters sampled from each compliance monitor well are reported as less than the detection limit for all parameters from all compliance monitoring wells. Accordingly, these data have identical mean values (all less than detection limit) and variance values of zero. The critical assumption that the variance be equal in all wells for the Analysis of Variance test is violated (variance equal to zero). Therefore, no statistical analysis (analysis of variance) is appropriate for these data.

5.0 CONCLUSIONS

This report presents findings of the March 29, 2001 compliance monitoring event at the Lockwood closed waste acid impoundment in accordance with requirements of the Part B Permit Application of August 10, 1994 and the Part B Post Closure Permit (NED044101442) issued by the NDEQ on December 16, 1994. The data show that none of the constituents of concern was detected in concentrations greater than the groundwater protection standards in any of the compliance wells sampled; all parameters evaluated are reported at concentrations less than detection limit.

Table 2
Summary of Measured Water Surface Elevations
During Compliance Monitoring Period October 1994 through March 2001

Monitor Well No.	Measured Groundwater Surface Elevation (AMSL) ¹													
	10/14/94	3/24/95	10/27/95	4/19/96	10/24/96	3/26/97	10/16/97	4/2/98	9/24/98	3/31/99	10/21/99	3/29/00	10/26/00	3/29/01
MW-8	72.33	71.01	71.88	70.59	72.39	70.83	72.87	71.21	73.43	71.29	72.67	71.08	73.03	71.45
MW-6	72.18	70.83	71.76	70.47	72.24	70.74	72.81	71.23	73.40	71.21	72.57	70.97	73.08	71.43
MW-3	71.94	70.68	71.51	70.28	72.09	70.52	72.38	70.90	73.19	70.97	72.53	70.76	72.92	71.26
MW-7	71.63	70.22	71.18	69.81	71.65	70.09	72.18	70.35	72.76	70.46	71.93	70.28	72.21	70.55
MW-1	71.67	70.32	71.20	69.92	71.76	70.19	72.16	70.49	72.75	70.62	72.09	70.44	72.48	70.78
MW-4	71.37	70.03	70.96	69.59	71.45	69.88	71.96	70.21	72.49	70.27	71.81	70.11	72.07	70.39

¹ Adjusted Mean Seal Level Elevation = Mean Seal Level (MSL) - 3,800 ft

Table 3
Summary of Compliance Monitoring Analytical Results

Monitor Well No.	Date Sampled	pH ¹	Specific Conductance ¹ (umhos/cm)	Temperature ¹ (°F)	VOCs ² (µg/L)	Total Cadmium (mg/L)	Total Lead (mg/L)	Total Silver (mg/L)
Groundwater Protection Standard					TCE: 5.0 PCE: 5.0	0.005	0.015	0.05
MW-8	3/29/01	7.03	687	54.5	<0.5	<0.005	<0.003	<0.01
MW-6	3/29/01	7.49	741	54.5	<0.5	<0.005	<0.003	<0.01
MW-3	3/29/01	7.76	708	55.4	<0.5	<0.005	<0.003	<0.01
MW-7	3/29/01	8.05	723	53.9	<0.5	<0.005	<0.003	<0.01
MW-1	3/29/01	6.69	1,257	53.0	<0.5	<0.005	<0.003	<0.01
MW-4	3/29/01	6.71	2,060	54.0	<0.5	<0.005	<0.003	<0.01
Trip Blank	3/29/01	NA ³	NA ³	NA ³	NA ³	<0.005	<0.003	<0.01
MW-1-d	3/29/01	7.0 ⁴	1,850 ⁴	NA ³	NA ³	NA ³	NA ³	NA ³
MW-4-d	3/29/01	NA ³	NA ³	NA ³	NA ³	<0.005	<0.003	<0.01

¹ Field Measurements

² Volatile Organic Compounds

³ Not Analyzed

⁴ Laboratory Analysis

Table 4
Groundwater Recovery Data¹

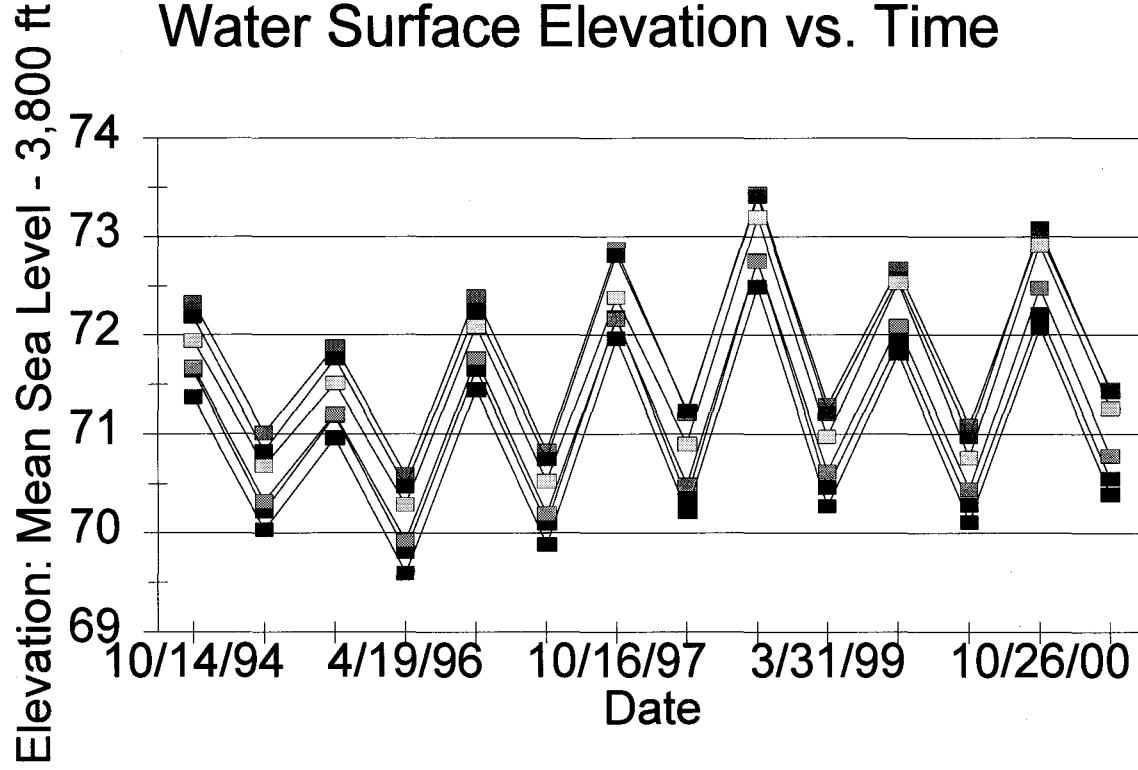
Monitor Well No.	Pre-Sample Water Depth (ft below TOC)	Elapsed Time² (sec)	Post-Sample Water Depth (ft below TOC)
MW-8	10.02	135	10.12
		165	10.12
		195	10.12
		225	10.12
MW-6	9.30	90	9.50
		120	9.50
		150	9.50
		180	9.50
		210	9.50
MW-3	9.74	180	9.96
		210	9.95
		240	9.94
		270	9.92
		300	9.92
MW-7	9.96	130	9.98
		160	9.97
		190	9.96
MW-1	9.36	135	9.41
		165	9.40
		195	9.39
		225	9.38
		255	9.38
MW-4	9.84	120	9.94
		150	9.93
		180	9.92
		210	9.91
		240	9.91
		270	9.91

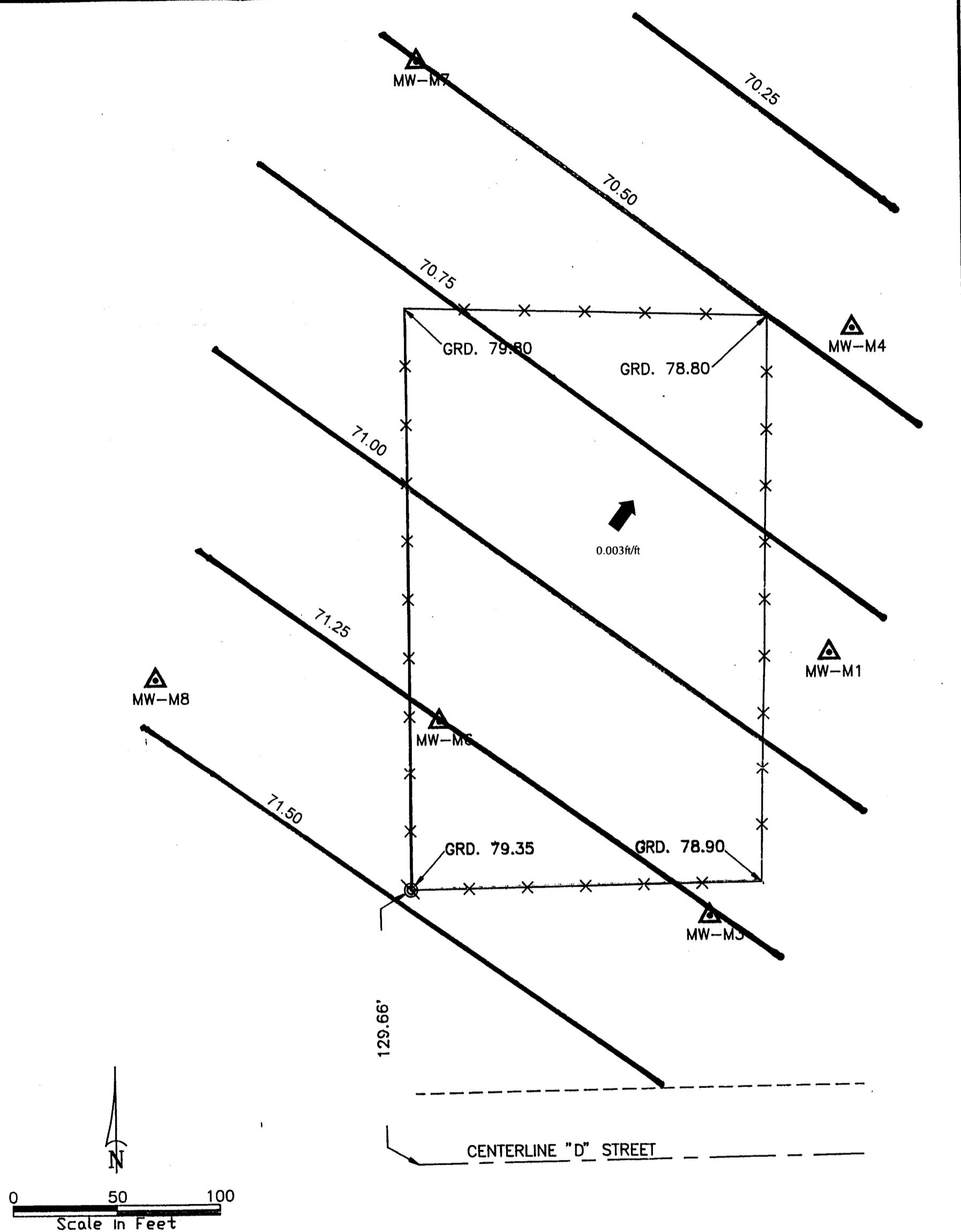
¹ Data as measured on March 29, 2001

² Elapsed Time from beginning of sampling

Figure 2

Water Surface Elevation vs. Time





KEY
 ▲ MONITORING WELL
 ○ EXISTING SPIKE

WELL #	GROUND ELEVATION (FT-AMSL) ¹	TOP OF CASING ELEVATION (FT-AMSL)	DEPTH TO GROUNDWATER (FT)	GROUNDWATER ELEVATION (FT-AMSL)
MW-M1	78.40	80.14	9.36	70.78
MW-M3	79.30	81.00	9.74	71.26
MW-M4	78.72	80.23	9.84	70.39
MW-M6	79.00	80.73	9.30	71.43
MW-M7	78.90	80.51	9.96	70.55
MW-M8	79.80	81.47	10.02	71.45

FIGURE 1
GROUNDWATER POTENTIOMETRIC SURFACE
AS MEASURED ON MARCH 29, 2001
CLOSED WASTE ACID EVAPORATION POND

M. C. SCHAFF & ASSOCIATES, INC. 818 SOUTH BELTLINE HWY. EAST SCOTTSBLUFF, NEBRASKA
Project: MONITORING WELL LOCATIONS AND ELEVATIONS LOCKWOOD CORPORATION GERING, NEBRASKA 69341
Date: OCTOBER 20, 1994 Job No. #
Drn: J.H. Chk: K.B.

APPENDIX A
TECHNOLOGY LABORATORY, INC.
WATER ANALYSIS REPORT
AND
CHAIN-OF-CUSTODY DOCUMENTATION

TECHNOLOGY LABORATORY, INC.

CENTRE OFFICE PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M8
Laboratory ID: 1372-1

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
56-23-5	Carbon tetrachloride	<0.5	108-67-8	1,3,5-Trimethylbenzene	<0.5
71-43-2	Benzene	<0.5	95-63-6	1,2,4-Trimethylbenzene	<0.5
107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
142-28-9	1,3-Dichloropropane	<0.5	120-82-1	1,2,4-Trichlorobenzene	<0.5
594-20-7	2,2-Dichloropropane	<0.5	87-68-3	Hexachlorobutadiene	<0.5
563-58-6	1,1-Dichloropropene	<0.5	91-20-3	Naphthalene	<0.5
542-75-6	cis-1,3-Dichloropropene	<0.5	95-50-1	1,2-Dichlorobenzene	<0.5
542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	114	86-118
Toluene-d ₈	97	88-110
4-Bromofluorobenzene	100	86-115

Brian Emery
TECHNOLOGY LABORATORY, INC.

TECHNOLOGY LABORATORY, INC.

CENTRE OFFICE PARK

1012 Centre Avenue
Fort Collins, Colorado 80526
(970) 490-1414

VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M6
Laboratory ID: 1372-2

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(μg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(μg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
56-23-5	Carbon tetrachloride	<0.5	108-67-8	1,3,5-Trimethylbenzene	<0.5
71-43-2	Benzene	<0.5	95-63-6	1,2,4-Trimethylbenzene	<0.5
107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
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542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	114	86-118
Toluene-d ₈	97	88-110
4-Bromofluorobenzene	100	86-115

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VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M3
Laboratory ID: 1372-3

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
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107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
142-28-9	1,3-Dichloropropane	<0.5	120-82-1	1,2,4-Trichlorobenzene	<0.5
594-20-7	2,2-Dichloropropane	<0.5	87-68-3	Hexachlorobutadiene	<0.5
563-58-6	1,1-Dichloropropene	<0.5	91-20-3	Naphthalene	<0.5
542-75-6	cis-1,3-Dichloropropene	<0.5	95-50-1	1,2-Dichlorobenzene	<0.5
542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	110	86-118
Toluene-d ₈	98	88-110
4-Bromofluorobenzene	101	86-115

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VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M7
Laboratory ID: 1372-4

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
56-23-5	Carbon tetrachloride	<0.5	108-67-8	1,3,5-Trimethylbenzene	<0.5
71-43-2	Benzene	<0.5	95-63-6	1,2,4-Trimethylbenzene	<0.5
107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
142-28-9	1,3-Dichloropropane	<0.5	120-82-1	1,2,4-Trichlorobenzene	<0.5
594-20-7	2,2-Dichloropropane	<0.5	87-68-3	Hexachlorobutadiene	<0.5
563-58-6	1,1-Dichloropropene	<0.5	91-20-3	Naphthalene	<0.5
542-75-6	cis-1,3-Dichloropropene	<0.5	95-50-1	1,2-Dichlorobenzene	<0.5
542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	111	86-118
Toluene-d ₈	99	88-110
4-Bromofluorobenzene	101	86-115

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VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M1
Laboratory ID: 1372-5

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(μg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(μg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
56-23-5	Carbon tetrachloride	<0.5	108-67-8	1,3,5-Trimethylbenzene	<0.5
71-43-2	Benzene	<0.5	95-63-6	1,2,4-Trimethylbenzene	<0.5
107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
142-28-9	1,3-Dichloropropane	<0.5	120-82-1	1,2,4-Trichlorobenzene	<0.5
594-20-7	2,2-Dichloropropane	<0.5	87-68-3	Hexachlorobutadiene	<0.5
563-58-6	1,1-Dichloropropene	<0.5	91-20-3	Naphthalene	<0.5
542-75-6	cis-1,3-Dichloropropene	<0.5	95-50-1	1,2-Dichlorobenzene	<0.5
542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	113	86-118
Toluene-d ₈	97	88-110
4-Bromofluorobenzene	103	86-115

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VOLATILE ORGANICS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sample ID: M4
Laboratory ID: 1372-7

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Project No.: H008-01-002/S01
Method: EPA-8260

<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>	<u>CAS Number</u>	<u>Compound Analyzed</u>	<u>Concentration</u> <u>(µg/L)</u>
75-01-4	Vinyl chloride	<0.5	106-93-4	1,2-Dibromoethane	<0.5
74-87-3	Chloromethane	<0.5	124-48-1	Dibromochloromethane	<0.5
74-83-9	Bromomethane	<0.5	108-90-7	Chlorobenzene	<0.5
75-00-3	Chloroethane	<0.5	630-20-6	1,1,1,2-Tetrachloroethane	<0.5
75-69-4	Trichlorofluoromethane	<0.5	100-41-4	Ethylbenzene	<0.5
75-35-4	1,1-Dichloroethene	<0.5		Total Xylenes	<0.5
156-60-5	trans-1,2-Dichloroethene	<0.5	100-42-5	Styrene	<0.5
156-59-2	cis-1,2-Dichloroethene	<0.5	75-25-2	Bromoform	<0.5
75-09-2	Methylene chloride	<0.5	79-34-5	1,1,2,2-Tetrachloroethane	<0.5
75-34-3	1,1-Dichloroethane	<0.5	98-82-8	Isopropylbenzene	<0.5
74-97-5	Bromochloromethane	<0.5	108-86-1	Bromobenzene	<0.5
67-66-3	Chloroform	<0.5	95-49-8	2-Chlorotoluene	<0.5
71-55-6	1,1,1-Trichloroethane	<0.5	106-43-4	4-Chlorotoluene	<0.5
56-23-5	Carbon tetrachloride	<0.5	108-67-8	1,3,5-Trimethylbenzene	<0.5
71-43-2	Benzene	<0.5	95-63-6	1,2,4-Trimethylbenzene	<0.5
107-06-2	1,2-Dichloroethane	<0.5	98-06-6	tert-Butylbenzene	<0.5
79-01-6	Trichloroethene	<0.5	135-98-8	sec-Butylbenzene	<0.5
78-87-5	1,2-Dichloropropane	<0.5	106-46-7	1,4-Dichlorobenzene	<0.5
75-27-4	Bromodichloromethane	<0.5	541-73-1	1,3-Dichlorobenzene	<0.5
74-95-3	Dibromomethane	<0.5	99-87-6	4-Isopropyltoluene	<0.5
108-88-3	Toluene	<0.5	104-51-8	n-Butylbenzene	<0.5
79-00-5	1,1,2-Trichloroethane	<0.5	87-61-6	1,2,3-Trichlorobenzene	<0.5
142-28-9	1,3-Dichloropropane	<0.5	120-82-1	1,2,4-Trichlorobenzene	<0.5
594-20-7	2,2-Dichloropropane	<0.5	87-68-3	Hexachlorobutadiene	<0.5
563-58-6	1,1-Dichloropropene	<0.5	91-20-3	Naphthalene	<0.5
542-75-6	cis-1,3-Dichloropropene	<0.5	95-50-1	1,2-Dichlorobenzene	<0.5
542-75-6	trans-1,3-Dichloropropene	<0.5	103-65-1	N-Propylbenzene	<0.5
127-18-4	Tetrachloroethene	<0.5			

QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	98	86-118
Toluene-d ₈	100	88-110
4-Bromofluorobenzene	99	86-115

Brian Emeny
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WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Sampled: 03/29/01
Received: 03/30/01
Analyzed: 04/03/01

Sample ID: M1-D

Project No.: H008-01-002/S01

Laboratory ID: 1372-6

<u>Compound Analyzed</u>	<u>Concentration</u>	<u>Method</u>
pH	7.0 Units	EPA-150.1
Specific Conductivity	1,850 $\mu\text{mhos}/\text{cm}$ @ 25° C	EPA-120.1

Bee Eanes

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TRACE METALS WATER ANALYSIS REPORT

SORENSEN CONSULTING, INC
1901 Bear Court
Fort Collins, Colorado 80525

Date Received: 03/30/01
Date Analyzed: 04/09/00
Project No.: H008-01-002/S01

<u>Lab ID</u>	<u>Sample ID</u>	<u>Date Sampled</u>	Total Cadmium <u>mg/L</u>	Total Silver <u>mg/L</u>	Total Lead <u>mg/L</u>
1372-1	M8	03/29/01	<0.005	<0.01	<0.003
1372-2	M6	03/29/01	<0.005	<0.01	<0.003
1372-3	M3	03/29/01	<0.005	<0.01	<0.003
1372-4	M7	03/29/01	<0.005	<0.01	<0.003
1372-5	M1	03/29/01	<0.005	<0.01	<0.003
1372-7	M4	03/29/01	<0.005	<0.01	<0.003
1372-8	M4-D	03/29/01	<0.005	<0.01	<0.003
1372-9	Trip Blank	03/29/01	<0.005	<0.01	<0.003

Total Cadmium Method: EPA-7130
Total Silver Method: EPA-7760
Total Lead Method: EPA-7420

Belo Emery
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W.O. NUMBER 1372

CHAIN-OF-CUSTODY REPORT

COMPANY NAME

SORENSEN CONSULTING, LLC.

PROJECT MANAGER

Paul Sorenson

PROJECT NUMBER

H008-01-003/501

PROJECT LOCATION OR NAME

Lockwood/AgronMAC; GERING, NE

SAMPLERS SIGNATURE

Paul C. Sorenson /D.L.R. Rasmussen

SAMPLE ID

DATE/TIME SAMPLED

SAMPLE MATRIX: SOIL (S)
AQUEOUS (W) OTHER (O)

NUMBER OF CONTAINERS

ANALYSIS REQUESTED

BTEX, TVPH

MTBE

DRO / TEPh

PAH

TRPH (418.1)

OIL & GREASE

VOC 8260 / TCLP

SEMI-VOC 8270 / TCLP

PCB / PESTICIDE

pH, TSS

ICP - SCAN (METALS)

RCRA 8 METAL / TCLP / TOTAL

LEAD TCLP / TOTAL / POT. DIS.

PAINT FILTER

REACTIVITY / IGNIT. / CORR.

TO-1, TVPH (AIR)

TO-14, TVPH (AIR)

TPb, TAG, Tcd
pH, Spec. Cond.

M8	4/29/01 09:05	W	3		X														
M6	" 09:44	W	3		X														
M3	" 10:30	W	3		X														
M7	" 11:15	W	3		X														
M1	" 13:04	W	3		X														
M1-d	" 13:05	W	1																X
M4	" 13:40	W	3		X														X
M4-d	" 13:41	W	1																X
Trip Blank	" 12:25	W	1																X

PAGE 1 OF 1

TURNAROUND TIME

NORMAL

RUSH

OTHER

GENERAL COMMENTS METHODS / DET. LIMITS: VOC - 8260/0.5 ug/L ; TPb - 7420/0.003 mg/L
TAg - 7760/0.01 mg/L ; TCd - 7130/0.005 mg/L

RELINQUISHED BY: <u>Paul Sorenson</u>	DATE: <u>3/30/01</u>	RECEIVED BY:
COMPANY: <u>Sorenson Consulting</u>	TIME: <u>9:50</u>	COMPANY:
RELINQUISHED BY:	DATE:	RECEIVED BY:
COMPANY:	TIME:	COMPANY: <u>Lee Bellas</u> <u>TLC 3/30/01</u>